

Name \_\_\_\_\_

Date \_\_\_\_\_

**Use your knowledge of Sets and Set Theory to answer each question below.**

 1. In each problem, indicate set equality by writing = or  $\neq$ .

a)  $A = \{0, 2, 4, 6, 8, 10, 12\}$  \_\_\_\_\_  $B = \{t, r, i, a, n, g, l, e\}$

b)  $C = \{a, e, i, o, u\}$  \_\_\_\_\_  $D = \{\text{vowels}\}$

c)  $X = \{\text{whole numbers} \leq 9\}$  \_\_\_\_\_  $Y = \{8, 4, 5, 7, 2, 0, 6, 3, 1\}$

d)  $P = \{\text{fingers}\}$  \_\_\_\_\_  $Q = \{\text{thumb, index, middle, ring, little}\}$

 2. In each problem, indicate whether one set is a subset of the other by writing the symbols  $\subset$  or  $\not\subset$ .

a)  $A = \{0, 2, 4, 6, 8, 10, 12\}$  \_\_\_\_\_  $B = \{\text{even numbers between 0 and 20}\}$

b)  $M = \{\text{consonants}\}$  \_\_\_\_\_  $N = \{a, b, c, d, e\}$

c)  $X = \{\text{whole numbers} < 7\}$  \_\_\_\_\_  $Y = \{8, 4, 9, 5, 7, 2, 0, 6, 3, 1\}$

d)  $C = \{a, e, i, o, u\}$  \_\_\_\_\_  $D = \{\text{The English alphabet}\}$

e)  $R = \{e, a, r\}$  \_\_\_\_\_  $S = \{c, a, r, d\}$

f)  $F = \{-4, -3, -2, -1, 0, 1\}$  \_\_\_\_\_  $G = \{\text{integers} < 7\}$

g)  $P = \{\text{Saturday, Sunday}\}$  \_\_\_\_\_  $Q = \{\text{Wednesday, Thursday, Friday, Saturday}\}$

3. Create an example of two sets in which the first set is a subset of the second.

\_\_\_\_\_

4. Create an example of two sets in which the first set is not a subset of the second.

\_\_\_\_\_

5. How many subsets does each set have? Show your work.

a)  $X = \{0, 2, 4, 6\}$  \_\_\_\_\_

b)  $Q = \{\text{fingers}\}$  \_\_\_\_\_

c)  $P = \{\text{primary colors}\}$  \_\_\_\_\_